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The surprising pink salmon are invading the southern Great Lakes and Dave Reid describes their first appearance in Lake Erie.

Dave also writes about a gesture of scientific co-operation involving the flight of two species of archaic fish from Lake Erie to Germany for research.

Charlie Weir reminisces about the early days of dropping fish from airplanes and what they hit.

Conservation officer Ken Morley tells how he caught some rainbow trout poachers and how they tried to defend themselves.

Ron Fabian relentlessly fights to save a shoreline marsh on Crowe Lake and his persistence pays off.

As Dan Strickland points out, research studies in an Algonquin Park lake reveal that perch are just too tough for aristocratic trout.

Front cover—Typical marsh scene found along the shoreline of some of Ontario's lakes. Photo by E. Thimm.

Outside back cover—The long-beaked gar pike, one of the archaic fish inhabitants of Ontario's lakes and streams. It can grow as long as 1 1/2 metres. Photo by E. Thimm.

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The goal of the Ministry of Natural Resources is to provide opportunities for outdoor recreation and resource development for the continuous social and economic benefit of the people of Ontario, and to administer, protect and conserve public lands and waters.



Ministry of
Natural
Resources

Hon. Alan W. Pope
Minister

W. T. Foster
Deputy Minister

EDITORIAL

Exotics

Many people go to zoos, aquariums, or arboretums to see exotic animals or plants from far away places. Some people travel to distant places to see them in their natural environments. Some private citizens or resource managers have accidentally or deliberately introduced exotic species to Ontario. In some cases a species dies out because it cannot compete and survive in our environment; in other cases it does compete successfully, becoming established by reproducing and extending its range.

There are many examples of introductions of exotic fish to Ontario. Some deliberate introductions like the rainbow trout and brown trout are considered good. Carp (deliberate), smelt (accidental) and sea lamprey (accidental) are usually considered undesirable. Questionable are white perch (accidental) and all the deliberately introduced salmon, such as pink, kokanee, coho and chinook.

Many people in the business and recreational sectors favor the short-term social and economic benefits of these introductions. However, resource managers and ecologists are concerned about the long-term impact on the natural system.

No one claims to be able to predict what changes in the ecosystem will ultimately result from the introduction of exotic species—except perhaps in broad terms. Once introduced and established, an exotic is usually impossible to eradicate.

The plantings of coho and chinook salmon in the Great Lakes since the mid-1960s have been hailed by many as an unqualified success. Some people have reservations. While major economic benefits resulted from those plantings, it has been suggested that comparable benefits could have been produced by using native species. There is less risk of the spread of diseases and of long-term ecological changes when the number of native fish is increased.

In our urgent plunge toward the good life we have incurred some rather large ecological debts. We have polluted our waters, denuded our lands and allowed the spread of harmful species.

In the case of exotic introductions of fish we must remind ourselves of the many mistakes that have been made in the past throughout the world. Let us not be hasty in stocking new species. Nor should we be hasty in making judgements on species already introduced—until enough time has elapsed to allow us to draw sensible conclusions. ■



Adult male pink salmon taken during the fall spawning run in one of Lake Erie's tributaries. The large hump on its back appears only during spawning time.

Photo by R. Wenting.

The first pinks in Lake Erie

by Dave Reid
Biologist, Simcoe District

MOST readers are familiar with the unplanned establishment of pink salmon (*Oncorhynchus gorbuscha*) in Lake Superior and upper Lake Huron. This event formed the basis for W. Kwain's article, "Pink salmon are here to stay," in Vol. 17, No. 4 of the *Ontario Fish and Wildlife Review* (Winter, 1978).

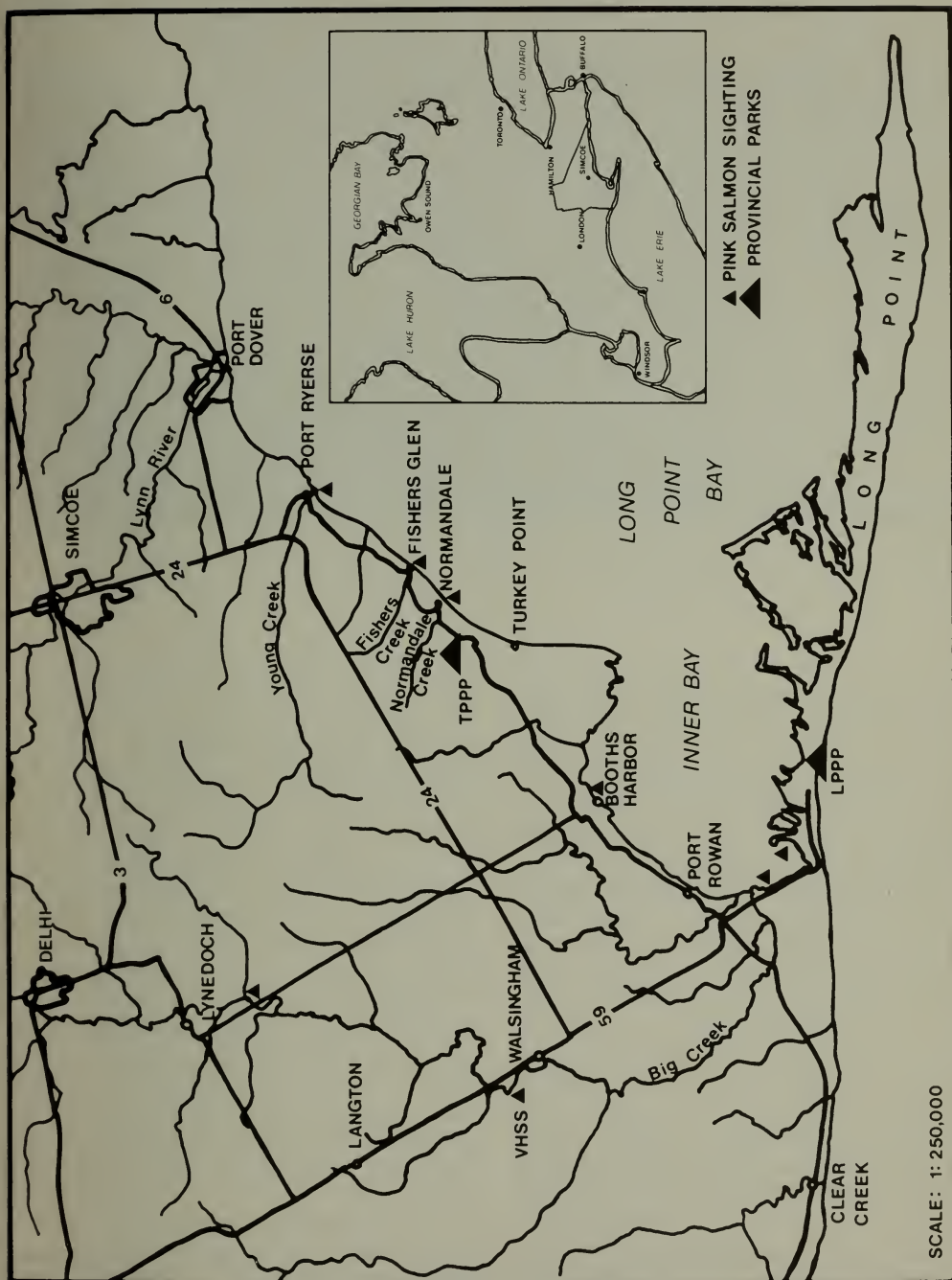
Many may also have heard of the recent invasion of the lower Great Lakes by pink salmon, which received widespread media coverage. Biologists and anglers were surprised by the appearance of this salmon in tributaries to Lakes Erie and Ontario. Suitable nursery streams flowing into Lake Michigan and southern Lake Huron were apparently bypassed.

In early September of 1979, hump-backed salmon were reported to be migrating into Young Creek, near Long Point

Bay, at Port Ryerse. Specimens collected on September 10 were confirmed to be pink salmon by experts at the Royal Ontario Museum. Pink salmon were later seen at Fishers Creek, 4.83 kilometres (3 miles) from Young Creek, as well as at American tributaries to Lake Erie, and several Canadian tributaries to Lake Ontario.

As word spread about the pinks in Young and Fishers Creeks, more and more anglers turned up on the banks to try their luck. In fact, the angler traffic became so heavy at Port Ryerse that the stream banks began to collapse under the load. Other people were attracted by the excellent opportunity to watch the fish spawning.

Sportsmen were catching fish with spinners, spoons, artificial flies, marshmallows, fish eggs, worms, lard, flatfish, and



LPP — Long Point Provincial Park

TPPP — Turkey Point Provincial Park

VHSS — Valley Heights Secondary School



Photo by D. Reid.

Rubble breakwater at Booth's Harbour on the shores of Inner Bay, Long Point. Here 20 pink salmon were seen digging nests in one metre of water.

in one instance, a jitterbug (a surface lure for bass). Most fish were about 46 centimetres (18 inches) long and 730 grams (1.6 pounds) in weight. Several fish in excess of 2 kilograms (4.5 pounds) were caught. Many more fish were illegally snagged, and several charges were laid.

Characteristically, the pinks spawned shortly after entering the coldwater streams. In Fishers Creek, most spawning occurred downstream from a road culvert, within 600 metres (656 yards) of the lake. In Young Creek, spawning was concentrated immediately downstream from a lamprey weir about 350 metres (383 yards) from the lake. This may have been due to an inability to surmount obstacles. The rainbow trout and coho salmon can easily get beyond both the road culvert and the weir.

Large numbers of salmon were first reported to be entering Normandale Creek on September 18. Several local people watched and photographed this event. At the height of the run one Normandale resident counted 20 to 25 pinks swimming

into the creek during a 15-minute period. The following morning a conservation officer walked the short section of creek accessible to the salmon. Only two pinks were still there.

According to a local resident, several schools of salmon had vacated the stream on the previous evening. Their emigration coincided with rising water levels caused by an evening shower. Normally, salmon and trout that live as adults in large waterbodies migrate into coldwater tributary streams in response to rising stream flows. Although suitable spawning habitat exists in Normandale Creek, the pink salmon apparently did not stay there long enough to complete their spawning. The following observations suggest that this was the case.

On September 25, following earlier reports of salmon within Inner Bay at Long Point, 20 pinks were seen digging nests along a rubble breakwater in front of a trailer park at Booth's Harbour, St. Williams. They were located in water 1 metre (3 feet) deep, 6 metres (20 feet) off shore.



Photo by D. Reid.

Another spawning area for the pinks is this gravel area just below the lamprey weir on Young Creek, Port Ryerse.

Two specimens, a male and a female, were captured with electro-shocking gear and found to be ready to spawn. This seemed unusual. Pink salmon do not normally spawn in warmwater habitats or on shoals, although spawning within the tidal areas of some west coast streams has been documented.

On September 26, pink salmon were first reported to be spawning in Big Creek behind Valley Heights Secondary School. This site is about 21.7 kilometres (13.5 miles) upstream from Long Point Bay and is the first suitable spawning habitat in the upper reaches of the creek. Ordinarily, pinks prefer to spawn in the lower reaches of streams. And yet on the following day a pair was observed spawning even farther upstream about 40.2 kilometres (25 miles) from the bay.

Are the lower Great Lakes' pink salmon here to stay? At the moment, we can only speculate. They do not appear to compete with other salmon or trout for spawning habitat because they spawn at an earlier time (early September to early October), and in downstream gravel beds, which are

not often used by other salmonids. However, these spawning areas quickly silt over, reducing the probability of a successful hatch.

Unlike rainbow and coho, newly hatched pink salmon fry move downstream to the lake immediately after emerging from the gravel beds in the spring. Thus, the young are not subjected to the extreme summer water temperatures and low water flow common in southern Ontario streams.

If the feeding habits of Great Lakes' pink salmon are similar to those of Pacific salmon, they may compete for food with many resident lake fish. Yet their dispersion through the Great Lakes happened by leaps and bounds. This suggests that they may be filling an ecological niche left vacant by the disappearance or decline of several fish species such as lake herring, lake whitefish, sauger and blue pike.

Although the pink salmon may not be able to spawn as fruitfully in Lake Erie tributaries as in the upper Great Lakes, it is probably here to stay. ■

"A crazy way to plant fish"

by Charlie Weir

THIS is a story about the first dropping of fish from aircraft in Haliburton County, back in the early 1950s.

We had provided the pilot and his helper with good maps of the area, indicating the number of brook trout to be dropped in each lake. But the effectiveness of the whole procedure was an unknown to us. Would they pick the right lake when a group of lakes was involved? Would the fish hit the lake or land in the bush? And would they survive the impact with the water?

The aircraft was coming from Parry Sound. It had been suggested that we be on some of the lakes at the time of the dropping to check on the success of the venture. We had been advised to spread out a few newspapers on the surface to let the pilot know we were there, and to indicate where to drop the fish.

By mid-morning on a beautiful day in late May, the conservation officer and I were at our destination—a small, rather remote brook trout lake in eastern Haliburton. On the way, we had stopped in to see Old Bill at his log farmhouse and had invited him to view the fish dropping on another nearby lake. Old Bill had guided the hatchery truck to the accessible lakes for many years and had assisted in hand-planting trout in the abundant cover along the shore.

Our lake was dead calm and crystal clear. We had some time to spare so we fished along the shore, thoroughly enjoying the warmth, the stillness and the scenery. Nothing was biting, however, and there was no surface activity. Suddenly, an osprey that had been hovering nearby power-dived into the tranquil water and came up with a struggling 35-centimetre (14-inch) brookie in its talons.

We spread our newspapers on the surface in the mouth of a bay and withdrew to the shoreline some 46 metres (50 yards) away. Suddenly we heard a plane and scrambled to get further out so we could see. It appeared from the south, flying over the treetops at our backs and shot out over our little bay. A gush of water and fish burst into the air. Separating quickly from the water, the tiny trout tumbled down. Beautiful!

We rowed to the spot as quickly as possible and were in time to see the last few swimming down and away. The rest had already recovered and were out of sight.

While contemplating what we had seen, we were startled by a big swirl, followed by a swoosh and swirl—three times repeated—within 18 metres (20 yards) of our boat.

"What the heck is that?" said the conservation officer.

Quickly casting to the spot, I hooked a fine 46-centimetre (18-inch) brookie. While I was playing it out, we saw it regurgitate two freshly planted trout. Later, we found a third one in its stomach.

Evidently, the gentle splashes and subsequent motion of a thousand tiny trout resembled the movement of minnows feeding on the surface. It was enough to attract some adult trout. We agreed that open water was not the best place to plant small fish.

On our way back, we stopped at the log house in the clearing and asked Old Bill for his report. His face was crimson.

"Who was that guy? What was he trying to do? I'm going to report him to the Premier!"

"Oh, oh," I thought to myself, "they
Continued on page 14



Aerial photo of Crowe Lake marsh near Tweed, Ontario. Only six hectares of the 10-hectare marsh remained after the illegal filling operation was stopped.

Photo by R. Fabian.

The case of the disappearing marsh

by R. Fabian

Conservation Officer, Tweed District

IT all began on October 30, 1979, when the Fish and Wildlife supervisor in Tweed District was notified by a representative of the Crowe Valley Conservation Authority that a marsh area of Crowe Lake was the site of a filling operation that had been going on for some time. There was concern because the filling was taking place within the floodplain, but as the Conservation Authority had not officially

defined the borders of the floodplain, it could take no action.

When I arrived at the site, in Marmora Township, Hastings County, I observed seven tandem trucks hauling fine sand out to the marsh. As the drivers dumped their loads a small tractor levelled the sand by pushing it into the marsh. Already about four hectares (10 acres) had been filled.

Continued on page 10



Green heron. Photo by Dr. D. Gunn.

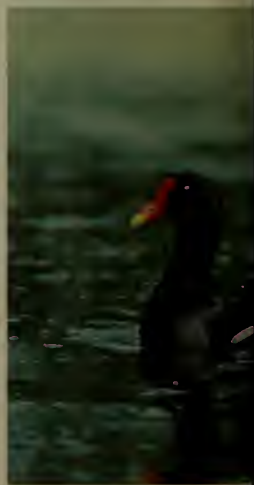


Common snipe. Photo by K. H. Himmer, Canadian Government Publishing Centre, Ottawa.

Typical creat



Leopard frog. Photo by Erika Thimm.



Gallinule. MNR staff

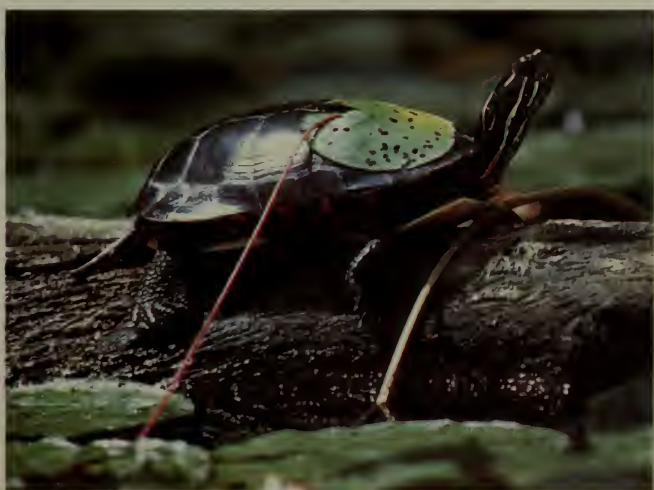


Northern pike. Photo by Doug Stamm.

of the marsh



Blue-winged teal. Photo by Dr. D. Gunn.



Midland painted turtle. Photo by W. Colgate.

The disappearing marsh

Continued from page 7

Approximately six hectares (15 acres) of marsh remained.

I was a relative newcomer to Tweed District and was not familiar with this marsh. I did know that muskellunge, largemouth bass and walleye were the principal species in the lake, and felt fairly sure that this marsh was good musky spawning ground.

I discussed the problem with my supervisor. We decided to contact a representative of the Crown to discuss the possibility of laying charges under Section 31. (1)* of the Fisheries Act. After meeting with the Crown representative, I filled out two information forms, one against the company that owned the property and one against the president of the company. Because the marsh was private land, the Public Lands Act did not apply.

Now the job of collecting the evidence began.

On November 6, I finally located the president and served him with two informations. At the same time I advised him that no further work was to take place on the marsh.

The next day, the fisheries management officer and I set three gill-nets off the marsh in Crowe Lake to identify the fish species present. We also checked the existing marsh and found a small pond within it, with several channels leading toward the lake. Since these channels had been filled, we had no evidence that they had linked the pond and the lake. I wanted to prove that fish could have used the channels to get to the marsh area, especially to the pond. I also wanted to prove that fish had used the pond and the channels leading from it as spawning ground.

On November 8, we lifted the gill-nets and found several muskellunge, walleye and bass.

The big problem I now had was to prove that under the fill was fish habitat and the alteration to the marsh was harmful. I found a former fishing guide and a trapper who were familiar with the marsh. Their statements bore out my suspicions that this was muskellunge spawning ground. But I

needed an expert witness to testify to this in court.

The following January, a telephone call brought more bad news. The company was once again hauling fill to the marsh. I quickly drafted two more informations and served them.

It was time to find a muskellunge expert. The Ministry's main office recommended Dr. E. J. Crossman, probably North America's most knowledgeable muskellunge expert. Dr. Crossman met several times with the special prosecutor appointed by the Attorney General's Department, and heard the statements of the fishing guide and the trapper whose aid I had enlisted. He agreed to be our expert witness.

The court date was set for June, 1980.

As June approached, the Crown Attorney and I prepared our evidence. This included current photographs of the marsh area; aerial photographs taken prior to the filling; a lake netting survey report; the Crown brief for my evidence; a certified deed of the property; copies of notices to the accused re documentary evidence we had, as well as notice of the appearance in court of our muskellunge expert; and the results of a search to determine the corporate structure of the company. The trapper and guide were briefed as witnesses.

Finally, the big day arrived. As the investigating officer, I was called as the first witness. For 2½ hours I gave evidence. After my testimony, the defence offered to change the plea to guilty if we would withdraw the charge against the president of the company. After a long discussion, we agreed. A court order was issued against the company, and sentence was suspended. In essence, the order stipulated that no work was to be done on the marsh without the written consent of the Ministry.

We achieved our goal—a registered conviction. It cost almost \$2,500 and a lot of hard work, but the remaining part of the marsh was saved. ■

* Section 31. (1) No person shall carry on any work or undertaking that results in the harmful alteration, disruption or destruction of fish habitat.



Photo by MNR Lake Simcoe staff.

Typical large yellow perch, which competes with trout and eventually takes over a lake.

Pushy perch stunt planted trout

*Based on an article by Dan Strickland
in The Raven, July 24, 1980*

IF you are a regular visitor to Algonquin Provincial Park, you are probably well aware of the long-standing tradition of scientific research in the park. More than 600 scholarly papers have been based on work done chiefly at our three biological research stations there. Research has been conducted by our own government personnel and by university scientists from across Canada.

One outstanding example was the work carried out by the Ministry of Natural Resources' brook trout specialist, Jim Fraser. The purpose of his research was to establish why planted trout do poorly in lakes containing perch. The results were published in 1978.* The American Fisheries Society judged it the best paper of the year. Winning such praise is no mean accomplishment, considering the importance of fisheries research in North America and the scale on which it is carried out.

Jim discovered that, although slight declines in the brook trout population occurred, the perch did not seriously affect

the survival rates of the planted trout. However, they did cause a drastic reduction in the size of the trout—and this was one of his most significant findings.

The second important finding was that perch do well at the expense of planted trout. This happens not because they eat the trout or infect them with parasites but because they completely outclass the trout in the hunt for food.

Jim's work also points out some serious practical considerations. First, it tells us that planted fish are quite inept at competing with perch for the best food. Second, it emphasizes the importance of forbidding the use of live bait fish in brook trout lakes.

This second point is one that anglers should be aware of. Some of the fish species used for live bait are capable of

** The effect of competition with yellow perch on the survival and growth of planted brook trout, splake, and rainbow trout in a small Ontario lake. Transactions of the American Fisheries Society, Vol. 107, No. 4, 1978. Pp. 505-517.*

harming trout when full grown. If a fisherman is ignorant of this fact, he may dump unwanted bait fish into a good trout lake and inadvertently upset future trout populations.

Jim did his work at Little Minnow Lake, a typical, small Algonquin lake at the end of a 1490-metre (1630-yard) portage leading east off Sproule Bay at the south end of Lake Opeongo. Little Minnow Lake has an area of 8.9 hectares (22 acres) and is moderately deep (14.3 metres or 47 feet). Originally, its only fish were sticklebacks and four minnow species.

Beginning in 1962, however, the lake was stocked each year with various combinations of brook trout, splake (an artificial hybrid of the brook and lake trout), and rainbow trout. Because fishermen returning from Little Minnow had to pass by the Opeongo creel-checking station, it was possible to get a good idea of the returns from the trout plantings. For about six years, both anglers and researchers had ample reason to be pleased.

Then, in 1968, yellow perch were discovered in the lake.

This meant the end of Little Minnow as a good trout lake. Everybody knew planted trout do poorly in lakes containing perch, but the reasons for this poor performance were unclear. Jim realized that Little Minnow Lake might offer the opportunity for an especially interested "before-and-after" comparison that could shed light on the problem.

He continued to plant trout over the next six years, closely monitoring the survival, growth, and food habits of the trout and the perch.

Initially, the perch grew very fast. When their numbers increased and they were competing among themselves for food, they grew less rapidly.

During the same time the trout showed a marked decrease in size (Table 1).

Analyses of stomach contents showed that before the arrival of the perch the trout were eating such large food items as minnows, leeches, dragonfly nymphs, and crayfish. After the perch were established the trout were forced to eat more of the smaller food organisms such as caddisfly and midge larvae. It was clear that the perch had taken over the supply of larger food items.

Perhaps we have unintentionally bred the competitive qualities out of hatchery trout, leaving them at an unnatural disadvantage in the demanding world of the lakes. In a hatchery, trout do not learn to compete or forage for food because they are hand-fed regularly.

As a result of his findings, Jim is now raising and planting young trout that originated from wild rather than hatchery eggs. With these plantings, he is exploring the possibility of achieving better results even in lakes that have no perch. He is also using various combinations of wild and hatchery trout. His early results are very encouraging. ■

TABLE 1
Trout weights in Little Minnow Lake before and after perch arrived.

	Average weight of splake	Average weight of all trout combined*
Before perch arrived—1965	673 g (1.5 lbs.)	4.1 kg (9 lb.) per kilogram planted
After perch had arrived—1973	243 g (0.5 lbs.)	0.61 kg (1.3 lbs.) per kilogram planted

* Rainbow trout, brook trout and splake.



Typical array of articles seized from fish poachers—spears, lights, large hooks and nets.

Photo by K. Morley.

“snakes, dogs and police characters”

by K. Morley

Conservation Officer, Lindsay District

FLOWING south to Lake Ontario from the headwaters in the Oak Ridges Moraine near Orono is a meandering trout stream known as Wilmot Creek. It is managed intensively by the Lindsay District of the Ministry of Natural Resources as a spawning ground for Lake Ontario rainbow trout. It also supports a small population of resident brook and brown trout.

Wilmot Creek is well known among local naturalists and anglers for the excellent recreational opportunities it offers. During the spring of each year, when the rainbow run is over, our enforcement effort is geared up to handle increased poaching activities.

When the rainbow trout migrate to the headwaters, they face a variety of snags, netters, and spear throwers—much to the dismay of bona fide anglers and local conservation officers. As a result,

officers can generally be found patrolling the water's edge day and night during this period.

I was on night patrol on April 19, 1980 when I saw a light shining in the waters of Wilmot Creek just south of Highway No. 2. As I made my cautious approach, I saw the light directed into the water again and again. At one point, I heard what sounded like the metal frame of a net scraping on rocks in the creek.

After following the light for about fifteen minutes, I tried to move closer. The loud talking of the men ahead prevented them from hearing me trip over rocks in the darkness as I followed, sliding down the stream bank and even getting caught in a barbed-wire fence from which I had to tear free.

There were four men. They had a net, a spear, lights and a fishing pole.

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"snakes, dogs and police characters"

Continued from page 13

When I finally stood panting behind a row of cedars just behind them, they turned to walk back upstream along the bank. They were coming directly toward me!

I had no alternative but to jump out and confront them with what I had observed. I immediately identified myself and arrested the man who carried a spear in one hand and a spotlight in the other. I checked the net—it was wet.

Because I did not actually see them using the net or spear, I couldn't charge them with attempting to take fish by means other than angling. I charged the man I arrested with possession of a spear within 100 feet (30.5 metres) of the water's edge. This "fisherman" was issued an appearance notice under Section 12 (2) of The Ontario Fishery Regulations. All articles were seized.

The accused did not appear in Bowmanville Court on the appointed date. He was found guilty in absentia and fined \$150.

Almost two months later, on June 6, I

received from the court office a notice of appeal on the case. With it was a copy of the spear carrier's letter of application for appeal. The following are excerpts from that letter.

"I am not a professional fisherman and as such, could not then be familiar with the fishing laws, rules and regulations in Ontario. . . .

"The spear found in my possession was intended to be used for our own personal protection against snakes, dogs and police characters and for this reason we had taken every precaution having been forewarned that Wilmot Creek is a dense forested wilderness and infested with snakes and police characters and for this reason of personal safety, we brought the spear and flashlight to light our way in the wilderness. . . .

"Humbly and respectfully pray, your Honour, to show upmost human sympathy, compassion, mercy and pity. . . ."

The appeal hearing was set for September 10. On that date, the appellant neither appeared nor sent a representative.

The original decision was upheld. ■

"A crazy way to plant fish"

Continued from page 6

either dropped the fish in the forest or planted the wrong lake."

"Didn't you get any trout?" I feebly enquired.

"Trout, hell!" stormed Old Bill. "I got them in my boat, in my hair, and they bounced off my shoulder! I think he did it on purpose!"

Apparently, the plane had come too soon for Old Bill to get his newspapers out on the water. So he had just rowed out on the tiny lake, right into the line of fire.

What he had seen of fish dropping came as a shock to this oldtimer.

He seemed to feel a little better after we explained the limitations of the new method, and related our experiences on the larger lake. But he still insisted, "That's a crazy way to plant fish." ■

Correction

The photos featured in the centrespread of Vol. 19, No. 2 were the work of Gerald McKeating, who took the five shots depicting the peregrine falcons and their nesting habitat, and Bill Colgate, who captured the moment in which the birds were lowered to their temporary cliffside home.



Dave Reid, district biologist, dipping a gar pike from one of the submerged crates in which the fish were held before shipment to Germany.

Photo by C. Blythe.

The fish that flew to Germany

by Dave Reid
Biologist, Simcoe District

FIVE bowfin (*Amia calva*) and four longnose gar (*Lepisosteus osseus*) received a free one-way trip to Germany on May 7, 1979, at the expense of Dr. Walter Vogel, a fishery scientist at the University of Tübingen. Dr. Vogel has been studying fish gills for some years, and was engaged in a comparative study of the blood vessel arrangement in the gills of fishes that are not highly evolved.

The bowfin and gar are archaic fishes. Dr. Vogel could not obtain them through

his regular suppliers. He asked for assistance from Dr. Paul Odense, a colleague in Halifax, who passed the request on to the Ontario Ministry of Natural Resources.

These particular fish were taken from Long Point Bay, a protected, shallow bay on the eastern part of Lake Erie's north shore. All nine fish were captured and donated by Harvey Ferris, a commercial hoop net fisherman and a member of a small hoop and seine net fishery that operates on the warmwater bay each spring



Fishery personnel oxygenating water in the plastic bags containing the gar pike and bowfin for shipment to Germany.

Photo by C. Blythe.

and fall. In addition to bowfin or "dog-fish," this fishery harvests bullheads (*Ictalurus nebulosus* and *I. natalis*), rock bass (*Ambloplites rupestris*), pumpkinseed (*Lepomis gibbosus*), black crappie (*Pomoxis nigromaculatus*), yellow perch (*Perca flavescens*), and northern pike (*Esox lucius*).

Most of the catch is sold live to American buyers who transport it in tanker trucks to stocked ponds throughout Ohio, Pennsylvania, Illinois, Indiana and New York. The longnose gar or "garpike" are caught incidentally and infrequently. They have no market value.

The Germany-bound fish were caught between April 23 and 27, and held in either submerged wooden scows or crates until flight day. Each species was shipped

separately in sturdy cardboard boxes, each of which contained a double plastic bag holding 19 litres (5 gallons) of water super-saturated with oxygen. All air above the water was replaced with pure oxygen. They had to survive in the boxes for about 18 hours, from their initial packaging early Monday afternoon until Dr. Vogel picked them up the following morning in Stuttgart, West Germany.

Needless to say, we were somewhat skeptical about their chances for survival. So we were pleased when Dr. Vogel wrote to us several days later to confirm that he had received eight live fish. Only one gar died in transit. The safe arrival of these fish enabled the German scientist to complete his research. ■

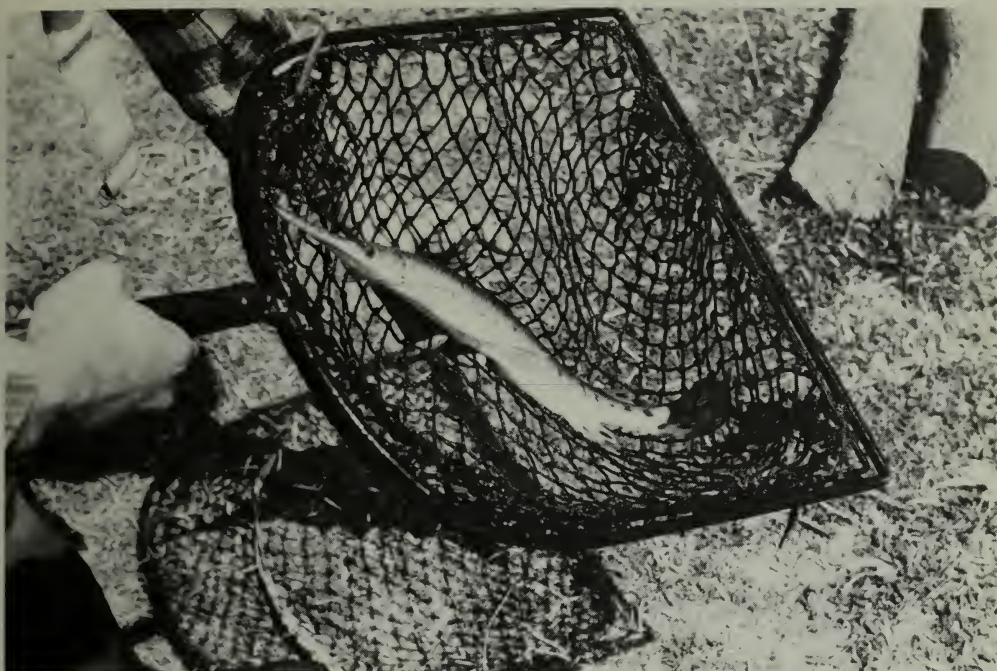


Photo by C. Blythe.

Gar pike—one of two archaic fish from Lake Erie live-shipped to Germany for scientific research. This fish is armor-plated with large, tough scales. Its eggs are poisonous to humans.

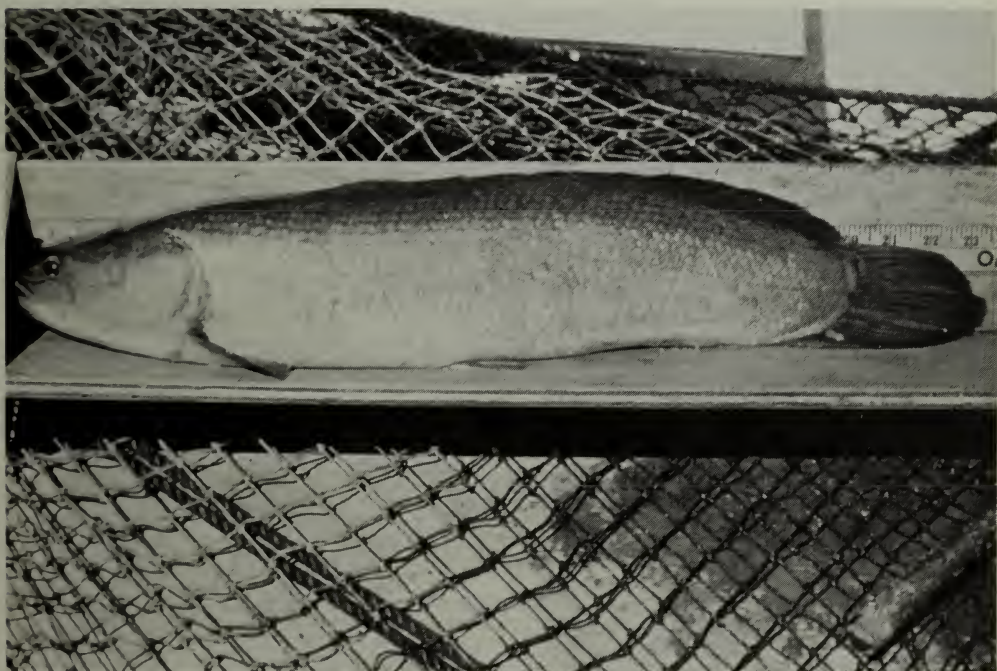


Photo by Dennis Stann.

A bowfin, another of Ontario's archaic fish that was shipped to Germany.

